REMARKS

Claims 1-30 are pending in the present application. Claims 1, 2, 4, 9, 10, 11, 12, 14, 19, 20, 21, 22, 24, 29, and 30 are amended. Support for the amendments to claims 1, 11, and 21 may be located at least on page 3, lines 5-7, on page 4, lines 3-31, and on page 15, lines 15-26 of the specification. Additionally, claims 1, 2, 4, 9, 10, 11, 12, 14, 19, 20, 21, 22, 24, 29, and 30 are amended to provide antecedent basis. Reconsideration of the claims is respectfully requested.

I. Telephone Interview

Applicants thank Examiner Cynthia L. Davis for the courtesies extended to Applicants' representative during the June 2, 2005 telephone interview. During the interview, Applicants' representative discussed amendments to the independent claims and the distinctions between the specification and the *Spinney* and *Acharya* references. Examiner Davis stated that the discussed amendments to the independent claims do not appear to be in the cited references and indicated that a further search would be required. The substance of the telephone interview is summarized in the following remarks.

II. 35 U.S.C. § 103, Alleged Obviousness Based on *Spinney* and *Acharya*

The Office Action rejects claims 1-30 under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Spinney et al.* (U.S. Patent 5,390,173), hereinafter referred to as *Spinney*, in view of *Acharya* (U.S. Patent 6,459,698). This rejection is respectfully traversed.

As to independent claims 1, 11, and 21, the Office Action states:

> Regarding claim 1, receiving a data packet having a header which one or more IP filter values are identified is disclosed in Spinney, column 1, lines 35-36 (disclosing a packet network using Ethernet, which uses IP) and column 14, lines 33-34 (disclosing filtering packets). Identifying a destination based on the one or more Internet Protocol filter values in the header of the data packet; and routing the data packet to the identified destination is disclosed in column 2, lines 15-18 (disclosing routing packets by local address values, which are contained in the header). The destination being a queue pair is missing from Spinney. However, Acharya discloses in column 1, line 40, and column 5, lines 17-18, an Infiniband network having multiple queue pairs. Infiniband networks are well known in the art for reducing bottlenecking in the transmission of data intensive files, such as video, voice, and audio. It would have been obvious to one skilled in the art at the

time of the invention to use the routing system of Spinney to route to a specific queue pair. The motivation would be to use the routing method of Spinney in an Infiniband network, which is well known in the art for reducing bottlenecking in the transmission of video, voice, and audio.

Regarding claim 11, a computer program product in a computer readable medium for routing data packets is disclosed in Spinney, column 1, lines 39-40 (disclosing that the system is implemented in a computer system). First instructions for receiving a data packet having a header which one or more IP filter values are identified is disclosed in Spinney, column 1, lines 35-36 (disclosing a packet network using Ethernet, which uses IP) and column 14, lines 33-34 (disclosing filtering packets). Second instructions for identifying a destination based on the one or more Internet Protocol filter values in the header of the data packet; and third instructions for routing the data packet to the identified destination is disclosed in column 2, lines 15-18 (disclosing routing packets by local address values, which are contained in the header). The destination being a queue pair is missing from Spinney. However, Acharya discloses in column 1, line 40, and column 5, lines 17-18, an Infiniband network having multiple queue pairs. Infiniband networks are well known in the art for reducing bottlenecking in the transmission of data intensive files, such as video, voice, and audio. It would have been obvious to one skilled in the art at the time of the invention to use the routing system of Spinney to route to a specific queue pair. The motivation would be to use the routing method of Spinney in an Infiniband network, which is well known in the art for reducing bottlenecking in the transmission of video, voice, and audio.

Regarding claim 21, means for receiving a data packet having a header which one or more IP filter values are identified is disclosed in Spinney, column 1, lines 35-36 (disclosing a packet network using Ethernet, which uses IP) and column 14, lines 33-34 (disclosing filtering packets). Means for identifying a destination based on the one or more Internet Protocol filter values in the header of the data packet; and means for routing the data packet to the identified destination is disclosed in column 2, lines 15-18 (disclosing routing packets by local address values, which are contained in the header). The destination being a queue pair is missing from Spinney. However, Acharya discloses in column 1, line 40, and column 5, lines 17-18, an Infiniband network having multiple queue pairs. Infiniband networks are well known in the art for reducing bottlenecking in the transmission of data intensive files, such as video, voice, and audio. It would have been obvious to one skilled in the art at the time of the invention to use the routing system of Spinney to route to a specific queue pair. The motivation would be to use the routing method of Spinney in an Infiniband network, which is well known in the art for reducing bottlenecking in the transmission of video, voice, and audio.

Office Action dated March 9, 2005, pages 2-4.

As amended, claim 1, which is representative of the other rejected independent claims 11, and 21 with regard to similarly recited subject matter, reads as follows:

1. A method of routing data packets to a queue pair, comprising:
receiving a data packet having a header in which one or more IP filter values are identified;
identifying a queue pair in a plurality of queue pairs based on the one or more Internet Protocol filter values in the header of the data packet, wherein a single channel adapter supports the plurality of queue pairs; and
routing the data packet to the identified queue pair. (emphasis added)

The Examiner bears the burden of establishing a *prima facie* case of obviousness based on the prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). For an invention to be prima facie obvious, the prior art must teach or suggest all claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Neither *Spinney* nor *Acharya*, taken individually or in combination, teaches or suggests identifying a queue pair in a plurality of queue pairs based on the one or more Internet Protocol filter values in the header of the data packet, wherein a single channel adapter supports the plurality of queue pairs, as recited in claims 1, 11, and 21.

Spinney is directed to a packet format in a hub for a packet data communications system. A packet data communication network employs a local switch, router or bridge device functioning to transfer packets between segments of a large network. When packets enter this device, an address translation is performed to generate local source and destination addresses, which are much shorter than the globally unique addresses contained in the packet as dictated by the protocol. These local addresses are inserted in a header that is added to the packet, in addition to any header already contained in the packet. This added header travels with the packet through the local switch, router or bridge device, but then is stripped off before the packet is sent out onto another network segment. The added header may also contain other information, such as a local name for the source and destination segment (link), as well as status information that is locally useful, but not part of the packet protocol and not necessary for transmission with the packet throughout the network. Examples of such status information include local congestion information, results of address translations, and end-of-message information See *Spinney*, abstract. The Office Action states that the "destination being a queue pair is missing from *Spinney*." Further, *Spinney* does not mention queue pairs. Thus, *Spinney* does not teach or suggest identifying a queue pair in a plurality of queue pairs based on

the one or more Internet Protocol filter values in the header of the data packet, wherein a single channel adapter supports the plurality of queue pairs, as recited in claims 1, 11, and 21.

Acharya is directed to supporting mapping of layer 3 priorities in an InfiniBand network. A router is configured for sending and receiving data packets on an InfiniBand network and acts as a bridge between an IP network and the InfiniBand network. The router is configured to receive an Internet Protocol (IP) data packet having an IP header including a type of service (TOS) field having a differentiated service code point indicative of layer 3 priority data of the IP packet. The router includes a mapping table having multiple entries, each entry specifying a differentiated services code point and a corresponding service level. The controller is configured for parsing the TOS field and determining the service level for the differentiated services level. The controller outputs the IP packet on the InfiniBand network within an InfiniBand packet according to the services level. See *Acharya*, abstract. *Acharya* does not teach or suggest identifying a queue pair in a plurality of queue pairs based on the one or more Internet Protocol filter values in the header of the data packet, wherein a single channel adapter supports the plurality of queue pairs, as recited in claims 1, 11, and 21.

In the rejection of independent claims 1, 11, and 21, the Office Action refers to the following portions of *Spinney*:

> Packet data communication networks of type using Ethernet, token ring, or FDDI technologies, or other network varieties, hubs are used for switching or routing, or for bridges to additional segments of the network.

Spinney, column 1, lines 35-36.

> These local addresses are inserted in a header that is added to the packet, in addition to any header already contained in the packet. This added header travels with the packet through the local switch, router or bridge device, but then is stripped off before the packet is sent out onto another network segment.

Spinney, column 2, lines 15-18.

> Thus, since every address is compared with the CAM entries anyway (to filter for multicast messages, SNAP filtering, etc.), and this compare in the CAM is done in parallel with the hash function, the CAM compare is without cost in time or new circuitry.

Spinney, column 14, lines 33-34.

These portions of *Spinney* disclose that packet data communication network hubs are used for switching or routing, that local addresses are inserted in a header, and that every address is compared with the content addressable memory (CAM) entries. *Spinney* does not teach or suggest identifying a queue pair in a plurality of queue pairs based on the one or more Internet Protocol filter values in the header of the data packet, wherein a single channel adapter supports the plurality of queue pairs, as recited in claims 1, 11, and 21. Further, *Spinney* does not even mention queue pairs.

In the rejection of independent claims 1, 11, and 21, the Office Action refers to the following portion of *Acharya*:

> The InfiniBand™ Architecture Specification specifies both I/O operations and interprocessor communications (IPC).

Acharya, column 1, lines 39-40.

> The communication management agent is responsible for setup and teardown of transport connections: the communication management agent communicates with a subnet manager to establish the transport connections (i.e., queue pairs) for the HCA 12.

Acharya, column 5, lines 17-18.

These portions of *Acharya* teach that a communications management agent is responsible for setup and transport connections or queue pairs for the HCA. *Acharya* does not teach that a single channel adapter supports a plurality of queue pairs. Specifically, *Acharya* does not teach or suggest identifying a queue pair in a plurality of queue pairs based on the one or more Internet Protocol filter values in the header of the data packet, wherein a single channel adapter supports the plurality of queue pairs, as recited in claims 1, 11, and 21.

Spinney and *Acharya* fail to teach or suggest identifying a queue pair in a plurality of queue pairs based on the one or more Internet Protocol filter values in the header of the data packet, wherein a single channel adapter supports the plurality of queue pairs. Therefore, the alleged combination of *Spinney* and *Acharya* does not teach or suggest these features, as recited in independent claims 1, 11, and 21.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the

knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

One of ordinary skill in the art would not combine *Spinney* with *Acharya* when each reference is considered as a whole. In considering each reference as a whole, one of ordinary skill in the art would take into account the problems recognized and solved. The present invention recognizes the problems associated with using one queue pair for each channel adapter for all IP traffic. *Spinney* and *Acharya* do not teach the problem or its source. *Spinney* is directed toward generating shorter addresses for local routing and processing (see *Spinney*, column1, lines 44-56). *Acharya* is directed toward supporting mapping of layer 3 priorities in an InfiniBand network (see *Acharya*, column 2, lines 10-14). One of ordinary skill in the art would therefore not be motivated to combine or modify the references in the manner required to form the solution disclosed in the present invention.

Furthermore, as noted above, there is no teaching or suggestion in the references as to the desirability of including the features from the other references. As the Examiner has failed to demonstrate any motivation or incentive in the prior art to combine and modify the references so as to achieve the claimed invention, the alleged combination can only be the result of impermissible hindsight reconstruction using Applicants' own disclosure as a guide. While Applicants understands that all examination entails some measure of hindsight, when the rejection is based completely on hindsight, as in the present case, to the exclusion of what can be gleaned from the references, then the rejection is improper and should be withdrawn.

Therefore, *Spinney* and *Acharya*, taken individually or in combination, do not teach or suggest the features of dependent claims 2-10, 12-20 and 22-30 at least by virtue of their dependency on independent claims 1, 11 and 21, respectively. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-30 under 35 U.S.C. § 103(a).

In addition, with regard to claims 4, 14 and 24, *Spinney* and *Acharya*, either taken alone or in combination, do not teach or suggest identifying the queue pair based on the comparison of the one or more Internet Protocol filter values in the header of the data

packet to the filter values in the collision table entry. *Spinney* does not mention queue pairs and *Acharya* only teaches that a queue pair attributes database stores information relating to a source queue pair number and a destination queue pair number for a host channel adaptor. *Spinney* and *Acharya* do not teach or suggest the features as described in claims 4, 14, and 24. Similarly with regard to claims 10, 20 and 30, *Spinney* and *Acharya*, either taken alone or in combination, do not teach or suggest identifying the queue pair in a plurality of queue pairs based on the one or more Internet Protocol filter values in the header of the data packet includes using a content addressable memory. Thus, in addition to being dependent on their respective independent claims, claims 2-10, 12-20, and 22-30 are also distinguished over the *Spinney* and *Acharya* references based on the specific features recited therein.

III. Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: 6/6/05

Respectfully submitted,

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